UNITED STATES
NUCLEAR REGULATORY COMMISSION

1st

INFORMATION REPORT

June 21, 1979

SECY-79-411

For: The Commissioners

From: James R. Shea, Director
Office of International Programs

Thru: Executive Director for Operations

Subject: STAFF MEETINGS WITH EURATOM AND DOE REPRESENTATIVES

Purpose: To inform the Commission of recent discussions with Euratom and Department of Energy representatives on export matters, and of a pending Commission briefing by DOE.

Discussion: Euratom Meeting

Mr. Jan B. Mennicken, Director-General of the Euratom Supply Agency, accompanied by Michael Goppel and Joseph Marchal of the Washington office of the Delegation of the Euratom Communities, met with the staff on March 16 to discuss the impact of U.S. export policies on Euratom nuclear facilities.

Mr. Mennicken opened the discussion with the observation that, for one reason or another, Euratom continues to experience difficulties in obtaining U.S. export licenses for nuclear materials. This, he explained, has not seriously jeopardized reactor operations as yet, but the uncertainty of timely supply disrupts tight industrial schedules, adversely affects the production chain, especially the conversion and fabrication sequences, causes employee layoffs and increases costs. He stated that the Euratom customers were angry with the frequent disruptions and it is becoming more difficult for those in Euratom to explain the reasons for delays. Mr. Mennicken observed that, immediately after the passage of the NNPA, Euratom and its customers expected improvements in the licensing process, but unexpected U.S. demands for additional information, such as written physical security assurances and facility attachment information, have arisen to further complicate the licensing process. Because Euratom's capability to react to such demands is legally and politically restricted, it takes time for the organization to react to U.S. requests and he asked that the

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U.S. keep this fact in mind and provide more advance warning in the future to enable Euratom to respond to any new problems.

Mr. Mennicken pointed out that the need for predictable supplies of highly enriched uranium was of particular concern. He said that while Euratom has the capability to produce low enriched uranium to meet much of its needs, the Community is 100% dependent upon the U.S. for its highly enriched uranium for the time being. He added that this does not mean that the Community has immediate plans to enrich HEU but that he was emphasizing their dependence on the U.S. and the need for an assured, stable supply.

Following his opening remarks Mr. Mennicken posed several questions. (1) Would it be possible for the NRC to permit routine reload licenses for HEU in the same manner that it does for LEU reloads? (2) Can Euratom expect delays in or cessation of licensing in the future for lack of facility attachments covering 100% of Euratom facilities? (3) Can Euratom expect further NRC holdups even if the President exempts the Community from the NNPA requirements under Criteria 4 and 5 on March 10, 1980?

The staff responded that topics such as these should be the subject of continuing review since it was generally agreed that it was not possible to provide definitive answers at this time. The staff observed, however, that the sensitive nature of HEU made it unlikely that major HEU exports would be handled as routine reloads for the foreseeable future. As for the Facility Attachment question, the Euratom delegation was advised of the Commission's concern that these be completed at the earliest possible time, and while it was unlikely that export licensing would cease for lack of 100% coverage, we could not rule out the possibility of future questions in this area if F.A.'s are not completed reasonably soon. The staff could not predict what future action the Commission might pursue with respect to Euratom's question number 3 concerning a possible Presidential exemption from Criteria 4 and 5; however, the Executive Branch's views in this matter would be of major importance.

On a related subject Mr. Mennicken referred to the licensing of components by the NRC, particularly licensing of zirconium tubes. He asked to know at what point in the fabrication process the zirconium tubing became subject to NRC licensing requirements and, consequently, to the prohibition of retransfer without prior U.S. approval. He indicated that the answer to this question could well determine whether Euratom would continue to obtain extruded tubing from the U.S. or develop an independent manufacturing capability to extrude zirconium in Europe. The staff agreed to provide a follow-up response to this question.

(Mr. Mennicken's question on tubing is probably a continuation of a similar question previously raised in regard to U.S. tubing containing non-U.S. natural uranium being fabricated into fuel assemblies in the FRG and shipped to Argentina for the Atucha-I reactor. A U.S. right of retransfer approval in this case would carry with it the right of veto over retransfer of the spent fuel from Argentina and, consequently, of reprocessing outside Argentina. In this instance, involving a Commerce license, the U.S. requested consultative discussions with the FRG on the disposition of spent fuel in U.S. origin tubes, but both the FRG and Argentina resisted and the request was dropped. On that occasion the FRG threatened to obtain a non-U.S. source for tubing.)

In the staff's view the comments and questions presented by Mr. Mennicken, and by Mr. Jaspert of the Euratom Supply Agency in his February 9 visit (Secy 79-245), reflect a growing dissatisfaction within the European community over U.S. requirements and policies which are perceived as erratic, disruptive and restrictive. The underlying implication may well be an increased shift from reliance upon the U.S. as a supplier of special nuclear material and nuclear equipment to greater European independence.

Department of Energy Meeting

Concern over this growing independence and its effect on DOE sales of enriched uranium was expressed by DOE staff on April 4 during a briefing on the status of U.S. enrichment contracts. On that date Clark Huffman from the DOE Oak Ridge Operations Office and Art Boudreau, DOE, Washington, with other DOE staff members, presented a discussion on the terms and conditions of the uranium toll enrichment contracts. NRC offices represented at this meeting included IP, FLD, OGC, and OPE. Materials presented by DOE at the April 14 meeting are at attachment A.

DOE has advised that Requirements-type contracts for the Philippsburg-2, the Biblis-A, and the Wuergassen reactors have been terminated by Euratom since February, 1979. DOE comments that a decision to terminate a Requirements contract in favor of another supplier, as is the case in each of these three instances, is quite surprising, since the terms and conditions of the U.S. Requirements Contract are very favorable to the customer and are not matched by any other supplier. According to DOE the rationale given by Euratom for the terminations was based on "security of supply" and the adverse effect that the NNPA is perceived to have on the certainty of the schedule for obtaining an export license. These three terminations bring to 8 the number of foreign contracts terminated since June 1, 1978; additional terminations are considered possible in the future.

The staff has received many complaints and comments from other foreign sources, as well as from many domestic sources involved in the export process, which substantiate the concerns expressed by Mr. Mennicken and those reflected by the DOE personnel. While there are, undoubtedly, a number of reasons supporting the action of foreign trading partners (for example, the strong desire of EURATOM nations to utilize the excess capacity at European enrichment facilities, which has been pointed to by EURATOM representatives as the main factor in U.S. contract cancellations), it appears that U.S. export policy is a significant influencing factor in foreign customer decision.

During the April 4 meeting the DOE staff offered to present a short briefing to NRC on the problems faced by DOE in retaining foreign enrichment customers. This offer was formalized on May 15 in a letter from William Voigt, Director, Office of Uranium Resources and Enrichment, DOE, to Mr. Lee Gossick (copy enclosed at Attachment B).*

Coordination: ELD has no legal objection.

James R. Shea, Director
Office of International Programs

Enclosures:
As stated

DISTRIBUTION:
Commissioners
Commission Staff Offices
Executive Director for Operations
Secretariat

*SECY NOTE: Arrangements have been made for a Commission briefing on July 5, 1979.

APPENDIX A

4 APR 1979

Ambassador Gerard Smith
Department of State
S/AS - Room 6333
Washington, D. C. 20520

Dear Mr. Ambassador:

Pursuant to our meeting, I am pleased to be sending you the marketing package that the Office of Uranium Resources and Enrichment is deploying worldwide. It contains brief summaries of our activities and capabilities in the enrichment area. The package was principally prepared in order to counter the aggressive marketing efforts of our European competitors with U.S. and non-U.S. customers. It would be our pleasure to provide you with additional information on our enrichment activities if you so desire.

I would also like to call to your attention an area of potential problems, falling not only on this Office, but more so on the Government of the United States. The problems concern our foreign customers' perception of the U.S. capacity to effectively deliver the product to our customers. Specifically, I am making reference to a trend which may be starting whereby foreign purchasers are terminating their contracts with the Department of Energy, due primarily to customers' objections to U.S. non-proliferation criteria and uncertainties regarding the timely issuance of export licenses.

A specific case in point concerns the Badenwerk/EVS utilities in Germany and their Philippsburg 2 Reactor. In October 1971, the Euratom Supply Agency signed a Requirements contract with the Atomic Energy Commission [illegible] the supply of fuel for the Philippsburg 1 and 2 Reactors, each with a planned rating of 864 MWe. Later, as the plans became firm, the second unit's capacity was increased to 1253 MWe. The utility then requested a larger fuel supply, but the AEC's supply capacity had been fully committed by then, so the Badenwerk Utility was held to the 864 MWe. The contract was for 0.84 million SWU's of enrichment services to be delivered from 1982 through 1990 with a value of approximately $75 million in FY 1980 dollars.

On February 21, 1979, the Badenwerk Utility terminated the Philippsburg 2 portion of their contract with DOE and gave the insecurity of supply as the principal reason. The decision to terminate a DOE Requirements contract in favor of entering into a contract with another supplier (as Badenwerk is doing) is quite surprising, since the terms and conditions of our Requirements contract are very favorable to the customer and are not matched by any other supplier. It even allowed termination without penalty to the purchaser if the action were taken some 3½ years prior to delivery. The Badenwerk Utility exercised this option in accordance with the appropriate schedule.

Two weeks ago, representatives from the Badenwerk Utility, as well as representatives from Euratom, came to Washington to explain the rationale for the Utilities Corporation decision. As the conversation ensued, the representatives from the Federal Republic of Germany stressed that they were extremely pleased with the quality of the product, the timeliness of deliveries, the terms and conditions of the contract, and the price per SWU. They further reiterated the decision to terminate was based on what they termed "security of supply," meaning their lack of confidance not in the U.S. ability to produce the enriched uranium on the desired time schedule, but in their ability to obtain a license to export the material. They pointed out that licensing approval is required from a number of branches of the U.S. Government outside DOE, including the Departments of State, Defense and Commerce, the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission, and that nuclear fuel needed by their reactors could be held up by any one party in this long chain. They pointed out that indiscretionary action such as political changes affecting export licensing is tantamount to a breach of contract. They, as a utility organization, entered into an agreement with the United States and the U.S. Government was obligated to meet its commitment. They went on to say that the terms and conditions of the non-proliferation treaty were meant to be applied between nations and not to a utility, as their purpose was to provide electric power and not nuclear bombs.

The representatives from Germany had no hesitation to point out that they were quite willing to purchase fuel elsewhere in the world market, under an assured delivery schedule and even at a price above that of the United States in a market that has a surplus of SWU's. We have learned that they have even entered into a contractual arrangement to purchase SWU's from the Soviet Union as well as from URENCO.

In summary, I believe that they are giving us a serious warning. We still have 17 enrichment contracts with Germany, representing about $1.5 billion in future sales. The total number of enrichment contracts with all foreign customers is 129, and these represent $13 billion in future revenues for the U.S. It is clearly important for us to make a serious effort to avert further contract terminations and loss of revenues.

The Office of Uranium Resources and Enrichment would appreciate your support and any suggestions you may have in working to alleviate some of the conflict and barriers which exist among the various Government Departments. We would like to continue on with our marketing activities so as to comply with the April 1977 Presidential commitment to prove to the world that the United States is a reliable source of nuclear fuel to those countries who will join us in the non-proliferation endeavors.

Sincerely,

ORIGINAL SIGNED BY
W. R. VOIGT, JR.

William R. Voigt, Jr., Director
Office of Uranium Resources
and Enrichment

CONTRACTS TERMINATED

Since June 1, 1978

		Contract Type	MWE	Termination Date	Value ($ Millions)
United States					
Jamesport-1	Long Island Lighting	LTFC	1 150	12/78	[illegible]
Foreign					
BASF	Germany	LTFC	770	6/78	100
HAMM	Germany	LTFC	1,100	12/78	170
VAHNUM	Germany	LTFC	1,211	1/79	150
PHILIPPSBURG-2	Germany	Reqmt.	864	2/79	70
VALDECABALLEROS	Spain	LTFC	926	2/79	90
					$690

POSSIBLE ADDITIONAL TERMINATIONS

	Number	MWE	Value
United States	6	6,776	$0.7 billion
Foreign	8	7,748	1.0 billion

POSSIBLE DOMESTIC CONTRACT TERMINATIONS

	Utility	Reactor	MWE	Status	Value ($ Millions)
1.	Houston Lighting	Allen's Creek-2	1,150	Reactor cancelled	$140
2.	Omaha Public Pwr.	Fort Calhoun-2	1,136	Reactor cancelled	120
3.	Philadelphia Elec.	Fulton-1	1,160	Reactor cancelled	120
4.	Central Maine	Sears Island	1,100	Coal instead of nuclear	120
5.	Commonwealth Ed.	Comm. Edison-1	1,150	Project postponed	120
6.	Iowa P&L	Vandalia	1,080	Project postponed	110
					$730

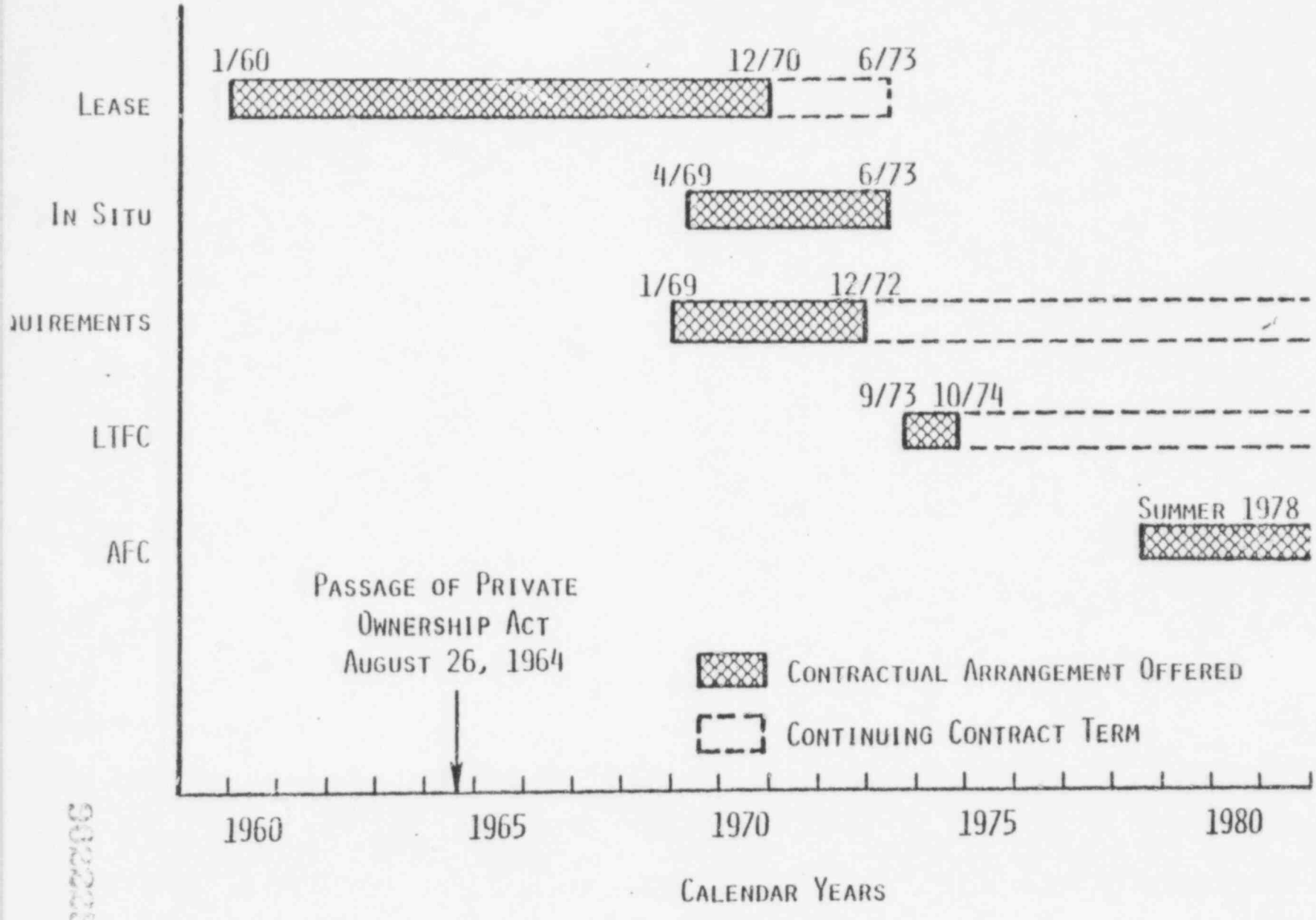
POSSIBLE FOREIGN CONTRACT TERMINATIONS

	Country	Reactor	MWE	Status	Value ($ Millions)	
1.	Germany*	Biblis-A EU-29	1,150	Operating	$ 215	notice received
2.	Germany*	Stade	630	Operating	75	
3.	Germany*	Wuergassen	640	Operating	100	
4.	Germany	Grohnde	1,286	Construction started, completion delayed	110	
5.	Germany	Neupotz-A	1,235	Construction not started	120	
6.	Thailand	Ao Phai	623	Indefinite postponement	100	
7.	Iran	Iran-1	1,092	Project uncertain	140	
8.	Iran	Iran-2	1,092	Project uncertain	140	
					$1,000	

*requirements contract

9. Germany Grundreginen (SP) EU-40

U. S. GOVERNMENT CONTRACTUAL ARRANGEMENTS FOR ENRICHED URANIUM



STATUS OF SIGNED TOLL ENRICHMENT CONTRACTS

	Number of Contracts	Number of Reactors	MWe
A. REQUIREMENTS			
1. Domestic	44	87	74,767
2. Foreign	38	46	24,471
Subtotal	82	133	99,238
B. FIXED COMMITMENT			
1. Domestic	131	121	126,023
2. Foreign	91	91	81,333
Subtotal	222	212	207,356
TOTAL (REQUIREMENTS AND FIXED COMMITMENT)	304	345	306,594

3-27-79

FEATURES OF THE REQUIREMENTS TYPE CONTRACT

- Designated End Use
  - Facility's Requirements for Enriched Uranium Are to be Provide
- Term of Contract
  - Up to 30 Years from Date of Signing
- Separative Work Ceiling
  - Total for Term of Contract
  - Cumulative by Year
- Enriching Services Charges
  - Published Price or Contract Ceiling Whichever is Less
  - 180 Day Notice for Price Change
- Lead Time for Order
  - 180 Days in Advance of Product Delivery
- Termination Provisions
  - 3 1/2 or 5 Year Notice, No Penalty
  - Up to 40% Within 5 Years

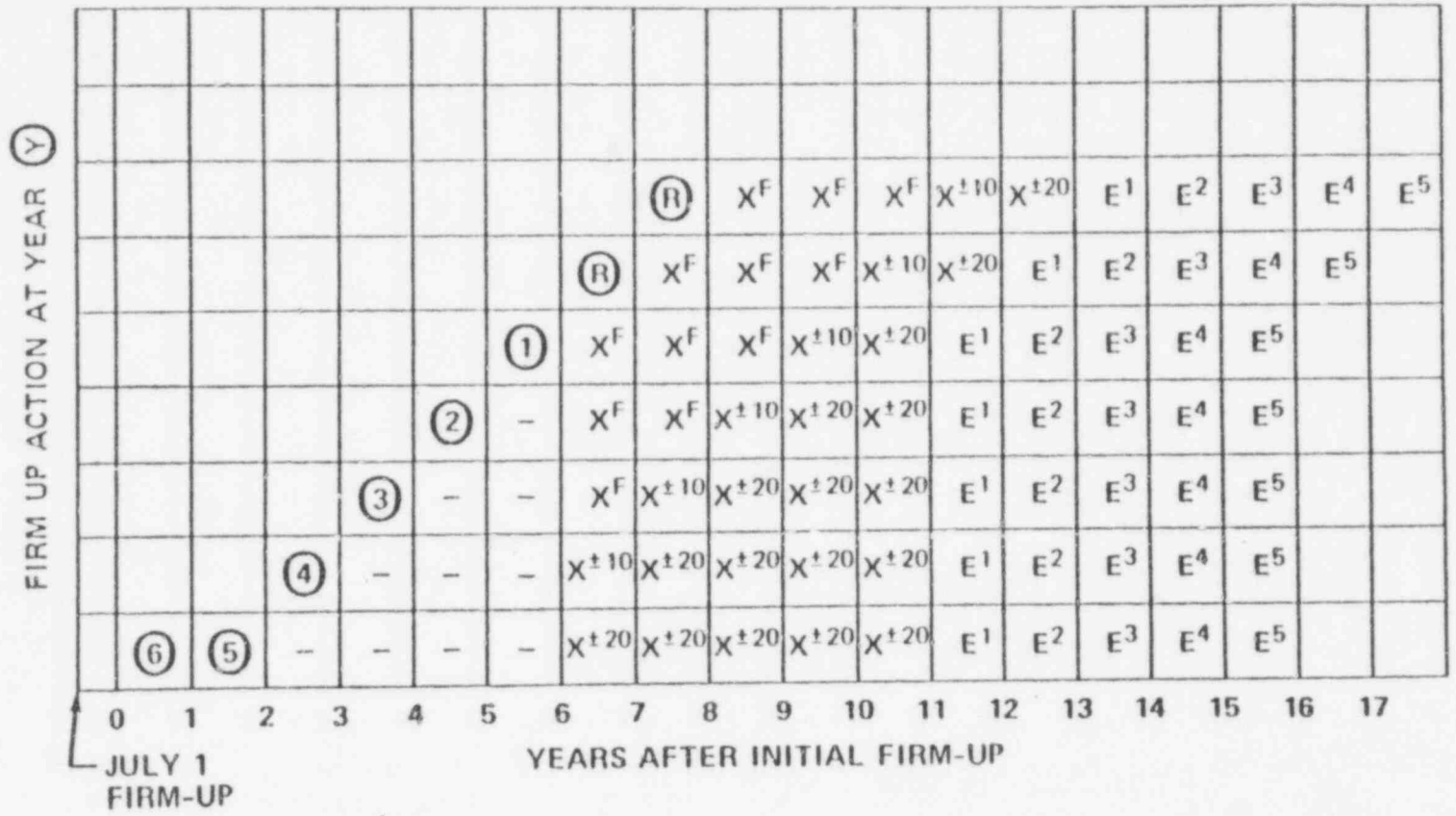
FEATURES OF
LONG-TERM, FIXED-COMMITMENT CONTRACT

- Designated End Use
- Term of Contract
  - Up to 30 Years of Enriching Services
- Establishment of Reactor Size
  - 200 Megawatt Range
- Restricted Distribution of Excess Material
  - Assignments With DOE Consent
  - Sales By Customer Allowed
- Lead Time For Contract Execution
  - 8 Years Before Need
- Firm Commitment Period
  - 10 Year Rolling Period
- Method of Firming Up Commitment
  - First Ten Years Firm
  - Establish Appendices 30 Days After CP Application or 4 Years After Contract Execution or 6 Years Prior to Delivery
- Rescheduling Flexibility
  - Delay In Withdrawal Only for Reloads When Issuance of Construction Permit is Delayed
- Flexibility In Quantity of Product
  - Appendix C for More Product
- Charges for Enriching Services
  - 60 Day Notice for Publication
- Advanced Payments Required
- Termination Charges
  - As Published in Federal Register

FEATURES OF
ADJUSTABLE FIXED-COMMITMENT CONTRACT

- Designated End Use
- Term of Contract
  - 10 to 30 Years
- Establishment of Reactor Size
  - 200 Megawatt Range
- Restricted Distribution of Excess Material
  - Assignments with DOE Consent
  - Sales by Customer Allowed
- Lead Time for Contract Execution
  - 6 to 10 Years Before Need
- Firm Commitment Period
  - 5 Year Rolling Period
- Method of Firming Up Commitment
  - First Three Years Firm
  - Variation Allowed in 4th and 5th Year
- Rescheduling Flexibility
  - Consideration in Form of Schedule Adjustment Charge for Postponement of Product Withdrawal
- Flexibility in Quantity of Product
  - Variable Tails Assay Option
- Transaction Tails Assay Limited
- Charges for Enriching Services
  - 120 Day Notice for Publication
  - Ceiling on SWU Charge
- Advanced Payments Required
- Termination Charges
  - As Published in Federal Register

METHOD FOR FIRMING UP SEPARATIVE WORK REQUIREMENTS



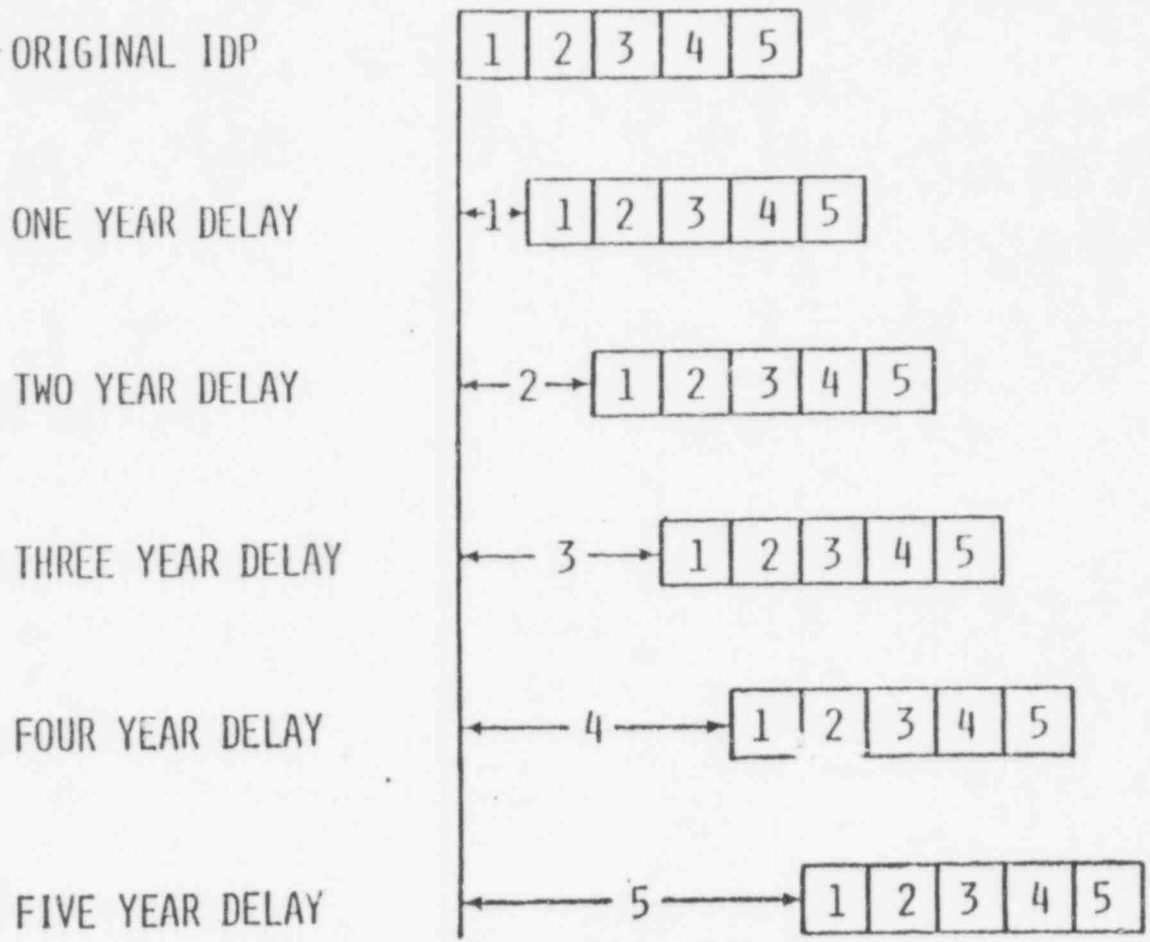
X^N FIRM SWU COMMITMENT
N DEGREE OF FIRMNESS
F FIXED
± VARIATION ALLOWED (% SWU)

E^A ESTIMATED SWU REQUIREMENTS, NON-BINDING
A=NO. YEARS BEYOND FIRM COMMITMENT

(Y) YEARS UNTIL INITIAL WITHDRAWAL

(R) = ROLLING 5 YEAR PERIOD

DELAY OF THE INITIAL FIRM PERIOD (IDP)



NOTICE OF DELAY MUST BE RECEIVED THREE MONTHS PRIOR TO INITIAL FIRM UP.

APPENDIX "A"

TO

CONTRACT NO. _____

1. DESCRIPTION OF FACILITY -

A. THIS AGREEMENT APPLIES TO THE FOLLOWING NUCLEAR GENERATING UNIT OWNED AND OPERATED BY _____: ENRICHED URANIUM-FUELED _____ NUCLEAR POWER PLANT KNOWN AS _____ AND SITUATED NEAR _____, _____. CRITICALITY IS EXPECTED TO OCCUR IN _____ AND FULL POWER OPERATION IS PLANNED BY _____.

B. THIS CONTRACT SUPPLIES ENRICHMENT SERVICES ASSOCIATED WITH ____ GROSS MWE FOR THE DESIGNATED FACILITY RATED AT _____ GROSS MW

APPENDIX "A"

TO

CONTRACT NO. _____ _____

2. ENRICHMENT SERVICES SCHEDULE:

KG UNITS OF SEPARATIVE WORK*	DELIVERY DATE (FISCAL YEAR)
126,739	1985 (INITIAL CORE-SPARE FUEL ASSEMBLIES)
170,356	1986 (INITIAL CORE-SPARE FUEL ASSEMBLIES)
141,393	1987
125,193	1988
123,880	1989

* SEPARATIVE WORK SUBJECT TO ALLOWABLE VARIATIONS CONTAINED IN ARTICLE II, SECTION 6.

APPENDIX "B"

TO

CONTRACT No. _____

1. MATERIAL SCHEDULE:

FISCAL YEAR OF PRODUCT DELIVERY	ENRICHED URANIUM PRODUCT		FEED MATERIAL OTHER THAN NATURAL URANIUM		
	ASSAY w/o U-235	TOTAL URANIUM KG	ASSAY w/o U-235	TOTAL URANIUM KG	SEPARATIVE* WORK UNITS
1985	1.80	28,811			51,773
	2.20	28,811			74,966
1986	2.60	28,811			99,139
	3.00	16,539			71,217
1987	3.10	12,271			55,539
	3.40	16,539			85,854
1988	2.70	12,271			44,863
	3.25	16,539			80,330
1989	2.65	12,271			43,550
	3.25	16,539			80,330

* SEPARATIVE WORK SUBJECT TO ALLOWABLE VARIATIONS CONTAINED IN ARTICLE II, SECTION 6.

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CALCULATION OF DEFERRAL CHARGES

Appendix A		Deferred Schedule	Present Worth Factor (Assumes Notice 7/1/79)
FY	SWU	SWU	
1981	250,000		.8956
1982	---		.8409
1983	100,000	250,000	.7896
1984	100,000	---	.7414
1985	100,000	100,000	.6962
1986	---	100,000	.6537
1987	---	100,000	.6138

Present Worth Factor For FY-1981:

$1/(1 + i)^N = 1/(1 + .065)^{1.7507} = .8956$

Present Value of Appendix A Schedule:

PA = [250,000(.8956) + 100,000(.7896 + .7414 + .6962)] = 446,626 SWU

Present Value of Deferred Schedule:

PD = [250,000(.7896) + 100,000(.6962 + .6537 + .6138)] = 393,772 SWU

Schedule Adjustment Charge:

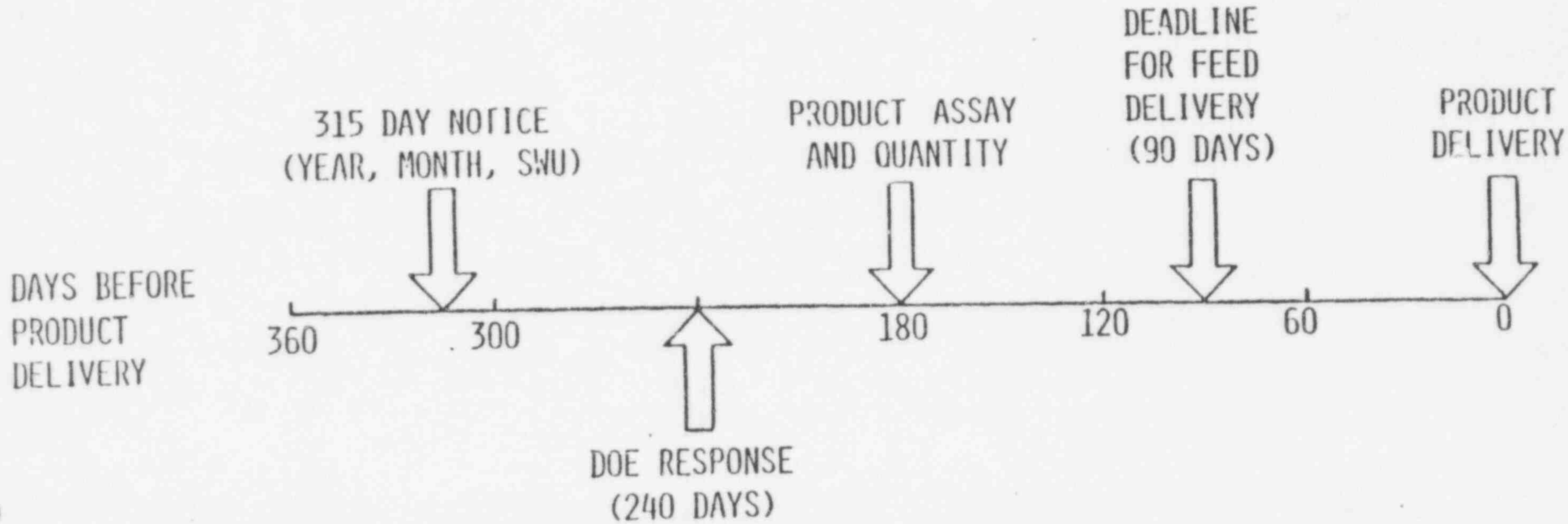
SAC = (PA - PD) x $75.00/SWU = $3,964,050

CUSTOMER NOTICES
REQUIRED EVERY JULY UNDER
AFC CONTRACT

(EQUILIBRIUM SITUATION)

- FIRM-UP 4TH FOLLOWING FISCAL YEAR WITHIN THE 10% VARIATION ESTABLISHED PRECEDING YEAR.
- CONFIRM OR CHANGE FOR THE 5TH FOLLOWING FISCAL YEAR WITH A VARIATION OF ±10% WITHIN THE ±20% VARIATION PREVIOUSLY ESTABLISHED.
- SUBMIT REQUIREMENTS FOR THE 6TH FOLLOWING FISCAL YEAR WITH ±20% VARIATION.
- PROVIDE NEW ESTIMATES OF REQUIREMENTS FOR THE 7TH - 11TH FOLLOWING FISCAL YEARS.
- PROVIDE ESTIMATES OF THE MONTH OF PRODUCT WITHDRAWAL AND MONTH OF FEED DELIVERIES FOR FOLLOWING 3 FISCAL YEARS.
- NOTIFY DOE OF ANY DELIVERY SCHEDULE SLIPPAGE FOR THE 2ND FOLLOWING FISCAL YEAR.
- NOTIFY DOE OF TRANSACTION TAILS UNDER VTAO FOR THE 2ND FOLLOWING FISCAL YEAR.
- PROVIDE ESTIMATES OF THE TRANSACTION TAILS ASSAYS UNDER VTAO FOR THE 3RD - 11TH FOLLOWING FISCAL YEARS.

NOTICES REQUIRED
UNDER
AFC CONTRACT



APPENDIX B